Syllabus for
PHY 111—Physics I Lecture
3 Credit hours
Spring 2011

I.   COURSE DESCRIPTION

Introduction of vector algebra: calculus-based studies of mechanics, heat, and thermodynamics.
Prerequisite: MAT 201.
Corequisite: Physics 111 Lab.

II.   COURSE GOALS

The purpose of this course is to enable the student to learn the laws of mechanics and heat, to see
how they can be applied to explain many physical phenomena observed around us; and understand
how they can be applied to build or improve devices that are beneficial to people.

III.   STUDENT LEARNING OUTCOMES FOR THIS COURSE

As a result of successfully completing this course, the student will be able to do the following:
A.   Demonstrate concepts of physics performing satisfactorily on homework and tests;

B.   Solve problems by applying the laws of physics and the tool of mathematics;

C.   Demonstrate communication skills by answering questions in class, writing reports and
        journals, and turning in homework assignments;

D.   Show design and team-work capabilities by working on a project;

E.   Apply the scientific method in analyzing natural physical phenomena in written reports;

F.   Demonstrate professional and ethical responsibility through punctual class attendance and
        stewardship of resources.

IV.   TEXTBOOKS AND OTHER LEARNING RESOURCES

A.   Required Textbook
        Serway, Raymond A. and John W. Jewett, Jr., Physics for Scientists and Engineers, 8th
        Edition, Philadelphia: Thompson/Brooks/Cole, 2010. ISBN 9780495827818

B.   Optional Materials
        Serway, Raymond A. and John W. Jewett, Jr., Study Guide for Physics for Scientists and
        Engineers, Thompson/Brooks/Cole, Orlando, 2008. ISBN 9781439048542

V.   POLICIES AND PROCEDURES

A.   University Policies and Procedures
        1.   Attendance at each class or laboratory is mandatory at Oral Roberts University.
                Excessive absences can reduce a student's grade or deny credit for the course.
        2.   Students taking a late exam because of an unauthorized absence are charged a late

exam fee.

3.   Students and faculty at Oral Roberts University must adhere to all laws addressing the ethical use of others' materials, whether it is in the form of print, electronic, video, multimedia, or computer software.   Plagiarism and other forms of cheating involve both lying and stealing and are violations of ORU's Honor Code: "I will not cheat or plagiarize; I will do my own academic work and will not inappropriately collaborate with other students on assignments." Plagiarism is usually defined as copying someone else's ideas, words, or sentence structure and submitting them as one's own. Other forms of academic dishonesty include (but are not limited to) the following:

  a.   Submitting another's work as one's own or colluding with someone else and submitting that work as though it were his or hers;

  b.   Failing to meet group assignment or project requirements while claiming to have done so;

  c.   Failing to cite sources used in a paper;

  d.   Creating results for experiments, observations, interviews, or projects that were not done;

  e.   Receiving or giving unauthorized help on assignments.

By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means. Penalties for any of the above infractions may result in disciplinary action including failing the assignment or failing the course or expulsion from the University, as determined by department and University guidelines.

4.   Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other event at the end of the semester.

5.   Students are to be in compliance with University, school and departmental policies regarding Whole Person Assessment (WPA) requirements. Students should consult the WPA handbooks for requirements regarding general education and the students' majors.

  a.   The penalty for not submitting electronically or for incorrectly submitting an ePortfolio artifact is a zero for that assignment.

  b.   By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

B.   Course Policies and Procedures

  1.   Evaluation Procedures

  a.   Four one-hour exams are given during the semester. These account for 60 percent of the final course grade. Students may elect to do an appropriate project and partially replace the lowest test grade with the project grade, or count the project as a bonus/extra credit.

  b.   Homework assignments are due at the beginning of the next class. Homework grade constitutes 15 percent of the final grade.

  c.   During the semester, one or two group projects will be completed by the student.Projects will collectively count 10% of the semester grade.

  d.   The final exam accounts for 15 percent of the final course grade.

  2.   Unexcused Absences

  a.   If a test is missed, the student should make a petition to the instructor for makeup either before the test date or the day the student comes back to

school. If the reason for absence is valid, the instructor may give a makeup test and impose a penalty of up to 25 percent. A late exam fee of $15 will be levied.

    b.   The final average of the semester will be reduced by one point for each unexcused absence above the first three.

3.   Tardiness and leaving classroom—A student may leave the class without the instructor's permission for reasons of personal necessity. If students are tardy, they must clear with the instructor at the end of the class. **Three tardies equal an absence. Students who would be more than 15 minutes late are not allowed in the class unless they have cleared it with the instructor in advance**.

4.   Whole Person Assessment Requirements
The final grade will be reduced by 5% for any ePortfolio artifacts that are not submitted by the end of the semester. (5% total, not per artifact)

VI.   COURSE CALENDAR

Week	Day		CH	Topic	Homework
1	1	Tu	1	Intro to Physics	5, 7, 11, 15, 17, 21
	2	W		Estimations, Sig Figs	23, 25, 31, 35, 39, 44
2	3	Th	2	1 Dim Motion	1, 3, 5, 11, 13, 16, 21
	4	M		Continue 1 Dim	25, 32, 37, 39, 45,49, 59
	5	Tu	3	Vectors	1, 3, 6, 9, 15, 25
	6	W		Continue Vectors	29, 33, 35, 41, 49
3	7	Th	4	2 Dim Motion	2, 3, 5, 11, 15, 25
	8	M		Continue 2 Dim Motion	29, 33, 35. 41, 49
	9	Tu		REVIEW CHS 1-4	
	10	W		**EXAM 1 (Chapters 1-4)**	
4	11	Th	5	Laws of Motion	1, 3, 6, 9. 14, 15
	12	M		Continue Laws of Motion	20, 25, 29, 35, 41 44, 51
	13	Tu	6	Circular Motion	2,4,13, 17,19,21,23,25
	14	W	7	Work-Kinetic Energy	2,9,13,16,25,29,32
5	15	Th		Continue Work-Kinetic Energy	36, 43,47, 51, 63
	16	M	8	Potential Energy/Conservation	2,5,9,11,21,30 31,38
	17	Tu		Continue Energy	43, 47, 51, 55, 63
	18	W		REVIEW CHS 5-8	
6	19	Th		**EXAM 2 (Chapters 5-8)**	
	20	M	9	Linear Momentum	2,7,9,12,15,18
	21	Tu		Continue Linear Momentum	23,26,29,34,39
	22	W		Review Problems	40,45,47
7	23	Th	10	Rotation of Extended Bodies	2,5,9,13,20,25
	24	M		Continue Rotation of Ext. Bodies	29,30,33,38
	25	Tu		Review Problems	41, 43, 36, 55
	26	W	11	Angular Motion	2,7,11,16,21
8	27	Th		Continue Angular Momentum	25,31,36,39
	28	M	12	Statics/Elasticity	3,6,17,21,26,31,35,41
9	29	Tu	13	Universal Gravitation	4,9,15,20,29,34
	30	W		REVIEW CHS 9-13	
10	31	Th		**EXAM 3 (Chapters 9-13)**	
	32	M	14	Fluid Mechanics	4,5,11,14

	33	Tu		Continue Fluid Mechanics	25,28,31,35
	34	W		Continue Fluid Mechanics	
11	35	Th	19	Temperature	3,9,18,27,37,41
	36	M		Continue Temperature	
	37	Tu	20	Heat/Thermodynamics	2,7,17,21,24,29,31
	38	W		Continue Heat/Thermodynamics	
12	39	Th		Review Problems/Discussion	
	40	M	21	Kinetic Theory	3,9,17,20,25,39
	41	Tu		Continue Kinetic Theory	
	42	W		Paper on Entropy	
	43	Th	22	Engines/Entropy	9,15,16
13	44	M		Second Law	
	45	Tu		Examples of Heat Engines	
	46	W		Carnot Cycle	
	47	Th		Continue Ch 22	
14	48	M		REVIEW CHS 14, 19	
	49	Tu		REVIEW CHAPTERS 20-21	
	50	W		REVIEW CHAPTERS 20	
	51	Th		**EXAM CHAPTERS 14, 19-22**	
15	52	W		**REVIEW FOR FINAL**	

Course Inventory for ORU's Student Learning Outcomes

PHY 111—Physics I Lecture
Spring 2011

This course contributes to the ORU student learning outcomes as indicated below:
Significant Contribution – Addresses the outcome directly and includes targeted assessment.
Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.
Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.
No Contribution – Does not address the outcome.

The Student Learning Glossary at http://ir.oru.edu/doc/glossary.pdf defines each outcome and each of the proficiencies/capacities.

OUTCOMES & Proficiencies/Capacities	Significant Contribution	Moderate Contribution	Minimal Contribution	No Contribution
1 Outcome #1 – Spiritually Alive Proficiencies/Capacities				
1A Biblical knowledge			√	
1B Sensitivity to the Holy Spirit				√
1C Evangelistic capability				√
1D Ethical behavior			√	
2 Outcome #2 – Intellectually Alert Proficiencies/Capacities				
2A Critical thinking	√			
2B Information literacy			√	
2C Global & historical perspectives			√	
2D Aesthetic appreciation			√	
2E Intellectual creativity		√		
3 Outcome #3 – Physically Disciplined Proficiencies/Capacities				
3A Healthy lifestyle				√
3B Physically disciplined lifestyle				√
4 Outcome #4 – Socially Adept Proficiencies/Capacities				
4A Communication skills			√	
4B Interpersonal skills			√	
4C Appreciation of cultural & linguistic differences			√	
4D Responsible citizenship				√
4E Leadership capacity			√	